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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
PATEL, PUNAM	

ART UNIT	PAPER NUMBER
2855	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/584,880	MAY, LUTZ	
	Examiner	Art Unit	
	PUNAM PATEL	2855	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01/28/2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7,9-17,20-31,33-45,47-50,52-59,64 and 65* is/are pending in the application.

4a) Of the above claim(s) *58,59,64 and 65* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7,9-17,20-22,24-31,33-40,44,47-49 and 55-57* is/are rejected.

7)☐ Claim(s) *23, 41-43,45,50 and 52-54* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 June 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

Claim 33 is objected to because of the following informalities: Claim 33 depends on cancelled claim 32. For the purposes of examination, Claim 33 will be read as depending on claim 31. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 25 and 36 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The disclosure fails to teach the first sensor element comprising: "a first magnetic flow in a first direction"; "a second magnetic flow in a second direction"; "a first circular magnetic flow"; **and** "a second circular magnetic flow" (four different magnetic flows in the first sensor element). Are the circular magnetic flows of claim 25/36 the same as the first and second flows of claim 2/29? **No art rejection is appropriate at this time.**

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 44, 49, 55-57 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With respect to Claim 49, the phrase "significant longer" in claim 29 is a relative phrase which renders the claim indefinite. The phrase "significant longer" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. What period of time between the two pulses is considered “significant longer”?

Claim 44 recites the limitations "the circumferential surface" and “the core region". There is insufficient antecedent basis for this limitation in the claim. Where and how are these elements located on the sensor element? Examiner suggests amending claim 44 to depend on Claim 43.

Claim 55 recites the limitations "the first location" and "the second location”. There is insufficient antecedent basis for this limitation in the claim. It is unclear as to which locations are being referred to. Claims 56-57 depend on Claim 55 and therefore inherit the deficiency. Examiner suggests amending claim 55 to depend on Claim 43.

Claim Rejections - 35 USC § 102

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-7, 9-17, 20-22, 24-35, 37, and 38 are rejected under 35 U.S.C. 102(b) as being May et al. (WO 99/56099).

With respect to Claims 1, 5, 7, 20, 21, 22, and 26, May et al. disclose a torque sensor comprising the following structural elements:

a steel and nickel shaft (Fig. 5b, #10 & pg. 14, lines 3-7) with a magnetically encoded region/variation (#20, wherein the region does not extend to the end faces of the shaft);

a core region extending inside the shaft along its longitudinal axis such that the core region surrounds a center of the shaft (Fig. 5b, wherein the shaft has a core);

a circumferential surface surrounding the core region and the outside surface of the shaft (#20, wherein the magnetically encoded region is read as the circumferential surface on the outside of the shaft that surrounds the core);

a first and second circumferential regions/pinning zones at the outside of the shaft (Fig. 5b, the two outer surface areas on the right and left side of the encoded region, #20, are read as the circumferential regions/pinning zones); and

a first and second electrode (#62) located at a first and second location on the shaft, respectively. Also see Figs 12a-b & Abstract.

With respect to Claims 24, 29, 31, 33-35, 37, and 38, May et al. disclose the encoded region of the shaft having a magnetic field structure such that there is a first magnetic flow in a first direction (#21a) and a second magnetic flow (#21b) in a second direction, wherein the two directions are opposed. See pg. 23, lines 11-13

With respect to Claim 30, May et al. disclose a second sensor element with at least one magnetic field detector (Abstract & Figs. 12a-b).

With respect to Claims 1-4, 6, 9-17, 24, 27, 28, and 32, **MPEP 2113 [R-1]** states that "[t]he patentability of a product does not depend on its method of production." Thus, the claims are not limited to the manipulations of the recited steps, only the structure implied by the steps (see Claims 1, 5, and 24, wherein the structure implied by the steps was given patentable weight).

Claim 39 is rejected under 35 U.S.C. 102(b) as being anticipated by Cripe (US 6,220,105).

With respect to Claim 39, Cripe discloses a method of forming a torque sensor comprising the steps of:

applying a first current pulse to a magnetoelastic sensor such that there is a first current flow in a first direction along a longitudinal axis of the sensor such that a magnetically encoded region is formed (col. 3: 43)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 40, 47, 48, and 55-57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cripe (US 6,220,105).

With respect to Claims 40 and 55-57 although Cripe does not elaborate on the number of current pulses, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Cripe to provide for a plurality of pulses at locations on the sensor element in order to enhance the magnetization in various directions, and therefore provide more accurate results.

With respect to Claims 47 and 48, although Cripe does not explicitly disclose the range of the current pulse amps, it would have been obvious to one of ordinary skill in the art at the time of the invention to select the maximum amp to be in a range between 40-1400, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Response to Arguments

Applicant's arguments filed 01/07/2009 have been fully considered but they are not persuasive.

Applicant argues that Claim 1 recites the limitation of "a second current pulse is applied to the sensor element in such a manner that there is a second current flow in a second direction along the longitudinal axis of the sensor element, the second direction being opposite to the first direction; and wherein each of the first and second current pulses has a raising edge and a falling edge, the raising edge being steeper than the falling edge" (Applicant's Arguments, pg. 15).

Claim 1 recites no such limitation.

Applicant argues that the manner in which the torque sensor is manufactured generates a specific type of known magnetic field in the sensor element (pg. 16). Applicant has provided no evidence supporting such a statement. Furthermore, applicant is reminded that in an apparatus claim, the manner in which the apparatus is made is not given patentable weight, **MPEP 2113 [R-1]**. In this instance May '099 discloses a torque sensor element with magnetic field lines. Examiner suggests amending the claims to further define the field lines of the current invention in order to overcome the prior art rejection based on May '099.

Applicant's arguments see pg. 17, filed 01/28/2009, with respect to the rejection of claims 39, 40, and 47 under May '099 have been fully considered and are persuasive. May '099 fails to explicitly disclose utilizing a current pulse to generate a magnetically encoded region in the sensor. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground of rejection is made in view of Cripe.

Allowable Subject Matter

Claim 23, 41-43, 45, 50, and 52-54 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 44 and 49 would be allowable if rewritten to overcome the rejection under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PUNAM PATEL whose telephone number is (571)272-6794. The examiner can normally be reached on Monday to Friday 9:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lisa Caputo can be reached on (571) 272-2388. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/PP/
03/30/2009

/Lisa M. Caputo/
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